CURRICULUM VITAE

Name: Myung Hee Park

Education:

1976	Ph.D.	Brown University, Providence, RI: chemistry,
1972	B.S.	Seoul National University, Seoul, Korea: chemistry,

Brief Chronology of Employment:

1998-present	Chief, Molecular and Cellular Biochemistry Unit, OPCB, NIDCR, NIH
1996-present	Research Chemist, GS-14 Oral and Pharyngeal Cancer Branch, NIDCR, NIH
1989-1996	Research Chemist, GS-13 Laboratory of Cellular Development and Oncology, NIDR, NIH
1984-1989	Senior Staff Fellow, Laboratory of Oral Biology and Physiology, NIDR,
1982-1984	Staff Fellow, Laboratory of Biochemistry, NIDR, NIH
1979-1982	Visiting Fellow, Laboratory of Biochemistry, NIDR, NIH
1976-1978	Research Associate, Department of Biology, Massachusetts Institute of Technology

Honors and Awards:

2000	CKD/ Society of Biomedical Research Award
1994	NIH Merit Award

Professional membership and associations:

The American Society for Cell Biology
The American Society for Biochemistry and Molecular Biology
Korean Scientists and Engineers Association
Society for Biomedical Research

Patents:

US Patent No 5,344,846, September 6, 1994 Jakus J, Park MH, Wolff EC. and Folk JE (1994) Compositions and methods for inhibiting deoxyhypusine synthase and the growth of cells.

US Patent. No. 10/486, 671, Feb 12, 2004; International Publication Number WO 03/018014; International Publication Date 06.03.2003 Priority Date August 23 2001; International Patent Application under the Patent Cooperation Treaty (PCT) International Application Number PCT/US02/26909 Filing Date August 23.2002; US Provisional

US Patent No. 60/314,561 August 23, 2001. Park MH, Clement PMJ, Hanauske-Abel HM, Wolff EC, Kleinman HK and Cracchiolo BM (2003) Method of inhibiting formation of vascular channels and methods of inhibiting proliferation

US Patent Application No PCT/US03/28742, Sept 13, 2003. Hanauske-Abel HM, Popowicz A, Wolff EC, Clement PMJ, Park MH, Cracchiolo BM. Methods of Diagnosing and Treating Hyperproliferative Disorders

US Patent Application No December 2003. Hanauske-Abel HM, Palumbo P, Cracchiolo BM, Park MH, Wolff EC, Hanauske A-R and McLendon G. Method of preventing survival of retrovirally infected cells and of inhibiting formation of infectious retroviruses

Editorial Responsibilities:

1999- Present Editorial Board Member: Archives of Pharmacal Research
1997-1998 Editorial Board Member: Journal of Biomedical Research

Invited Lectures and Symposium Presentations:

2003 The US Korea Conference, Pasadena, CA
2002 Annual Meeting of the Japanese Society of Biochemistry, Kyoto, Japan
Korean National Institute of Health, Seoul, Korea
Skin Research Institute, Pacific R & D Center, Yongin, Korea
Seoul National University, School of Medicine, Seoul, Korea
Catholic University of Korea, Cancer Research Center, Seoul, Korea
Catholic University of Daegu, Daegu, Korea
1999 Gordon Research Conference on Polyamines, Oxford, United Kingdom
1998 Cancer Research Institute, Catholic University, Seoul, Korea
Key Myung University Medical School, Taegu, Korea
Kangnung National University College of Dentistry, Kangnung, Korea
1996 Workshop on eIF-5A Function, Genetic Therapy, Inc. Gaithersburg, MD
Tokyo International Symposium on Polyamines, Tokyo, Japan
Tokyo Medical and Dental University, Tokyo, Japan
Seoul National University, Seoul, Korea
Duk-Sung Women's College, Seoul Korea
LBG, NIDDK, NIH, Bethesda MD
LMCB, NIDDK, NIH, Bethesda, MD
1995 Korean Green Cross Corporation, Yongin, Korea
Korean National Institute of Health, Seoul, Korea
Schering-Plough Institute, Kenilworth, NJ
Sandoz Research Institute, Vienna, Austria
International Congress on Amino Acids, Vienna, Austria
Gordon Conference on Polyamines, Meriden NH
1994 Meeting of the Society of Biomedical Research
Eisai Research Institute, Andover, MA
1993 Merck Sharp & Dohme Research Laboratory, WestPoint, PA

	University of Maryland, School of Pharmacy, Baltimore, MD
1990	Seoul National University, Seoul, Korea
	International Symposium on Polyamines in Molecular and Medical Biology, Kyoto, Japan
1989	Gordon Conference on Polyamines, Newport. RI
	Howard University, Washington, DC
1988	University of Rome, Rome, Italy
	International Symposium on Polyamines in Biochemical and Clinical Research, University of Naples, Naples, Italy
1986	Georgetown University, Medical School, Washington, DC
1984	FASEB Meeting, Mini-symposium on Polyamines, St. Louis, MO
1983	Pennsylvania State University, College of Medicine, Hershey, PA
	Gordon Conference on Polyamines, New London, NH

Research Services:

Intramural

1992-1996	NIDR Safety Committee
1993-1994	NIDR Visiting Scholars Committee
1997	NIDR Discretionary Funds Committee
1997	NIDR DIR Seminar Committee
1998	NIDR Equipment Committee
1998	BSC Report Format Committee
1997-1999	NIDCR Animal Care and Use Committee
2001	Search Committee, Laboratory of Retinal Cell and Molecular Biology, National Eye Institute

Extramural

1985	Ad Hoc Review Member, Site Visit, University of Arizona
1987	Ad Hoc Review Member, Site Visit, Harvard Medical School
1994	Grant Review Board Member, Korean Science Foundation
1995-2000	Member, Organizing Committee, Annual meeting of the Society of Biomedical Research
2001	Consultant, NIH CSR Study Section
2003	Grant Review Board Member, FY2003 USAMRMC/CDMRP Breast Cancer Research Program
2003-present	Technology adviser, Rexahn corporation
2004	Chairperson, Organizing Committee, 14th Annual Meeting of the Society of Biomedical Research

Publications:

1. Lusk J.E. and Park M.H. Phospholipase activity plays no role on the action of colicin. *K Biochim. Biophys. Acta*. **394**:129-34, 1975.
2. Park M.H., Wong B.B. and Lusk J.E. Mutants in three genes affecting transport of magnesium in *Escherichia coli. Genetics and physiology J. Bacteriology*. **126**:1096-103, 1976.
3. Park M.H., Berg W.H., and Buchanan J.M. The formation of plasminogen activator during viral transformation of chick embryo fibroblasts. *Chem. Phys. of Human Plasma Proteins*. 315-28, 1979.
4. Folk J.E., Park M.H., Chung S.I., Schrode J., Lester E.P., and Cooper H.L. Polyamines as physiological substrates for transglutaminases. *J. Biol. Chem.* **255**:3695-700, 1980.
5. Park M.H., Cooper H.L., and Folk J.E., Identification of hypusine, an unusual amino acid, in a protein from human lymphocytes and of spermidine as its biosynthetic precursor. *Proc. Natl. Acad. Sci. US.***78**:2869-73, 1981.
6. Park M.H., Cooper H.L., and Folk J.E. The biosynthesis of protein-bound hypusine [N^{ε}-(4-amino-2-hydroxybutyl)lysine]: lysine as the amino acid precursor and the intermediate role of deoxyhypusine [N^{ε}-(4-aminobutyl)lysine]. *J. Biol. Chem*. **257**:7217-22, 1982.
7. Cooper H.L., Park M.H., and Folk J.E. Posttranslational formation of hypusine in a single major protein occurs generally in growing cells and is associated with activation of lymphocyte growth. *Cell.* **29**:791-97, 1982.
8. Cooper H.L., Park M.H., Folk J.E., Safer B., and Braverman R. Identification of the hypusine-containing protein Hy^{+} as translation initiation factor eIF-4D. *Proc. Natl. Acad. Sci. USA.* **801**:854-57, 1983.
9. Park M.H., Chung S.I., Cooper H.L., and Folk J.E. The mammalian hypusine-containing protein, eIF-4D. structural homology of this protein from several species. *J. Biol. Chem*. **259**:4563-5, 1984.
10. Park M.H., Liberato D.J., Yergey A.L., and Folk J.E. The biosynthesis of hypusine [N^{ε}-(4-amino-2-hydroxybutyl)lysine]: alignment of the butylamine segment and source of the secondary amino nitrogen. *J. Biol. Chem*. **259**:12123-27, 1984.
11. Abbruzzese A., Park M.H., and Folk JE. Deoxyhypusine hydroxylase from rat testis: partial purification and characterization. *J. Biol. Chem*. **261**:3085-9, 1986.
12. Abbruzzese A., Park M.H., and Folk J.E. Indirect assays for deoxyhypusine hydroxylase using dual-label ratio changes and oxidative release of radioactivity. *Anal. Biochem.* **154**:664-70. 1986
13. Park M.H. and Folk J.E. Biosynthetic labeling of hypusine in mammalian cells: carbon-hydrogen bond fissions revealed by dual-labeling. *J. Biol. Chem.* **261**:14108-11, 1986.
14. Park M.H., Liu T.Y., Neece S.H., and Swiggard W.J. Eukaryotic initiation factor 4D: purification from human red blood cells and the sequence of amino acids around its single hypusine residue. *J. Biol. Chem.* **261**:14515-19, 1986.
15. Park M.H. Regulation of biosynthesis of hypusine in Chinese hamster ovary cells: evidence for eIF-4D precursor polypeptides. *J. Biol. Chem.* **262**:12730-34, 1987.

16. Park M.H. Identification of an eukaryotic initiation factor 4D precursor in spermidine-depleted Chinese hamster ovary cells. *J. Biol. Chem.* **263**:7447-9, 1988.
17. Park M.H. and Wolff E.C. Cell-free synthesis of deoxyhypusine: separation of protein substrate and enzyme, and identification of 1,3-diaminopropane as a product of spermidine cleavage. *J. Biol. Chem*. **263**:15264-69, 1988.
18. Abbruzzese A., Park M.H., Beninati S., and Folk J.E. Inhibition of deoxyhypusine hydroxylase by polyamines and by a deoxyhypusine peptide. *Biochim. Biophys. Acta.* **997**:248-55, 1989.
19. Park M.H. The essential role of hypusine in eukaryotic translation initiation factor 4D (eIF-4D): purification of eIF-4D and its precursors and comparison of their activities. *J. Biol. Chem*. **264**:18531-35, 1989.
20. Wolff E.C., Park M.H., and Folk J.E. Cleavage of spermidine as the first step in deoxyhypusine synthesis. *J. Biol. Chem.* **265:**4793-99, 1990.
21. Abbruzzese A., Hanauske-Abel H.M., Park M.H., Henke S., and Folk J.E. The active site of deoxyhypusyl hydroxylase: use of catecholpeptides and their component chelator and peptide moieties as molecular probes. *Biochim. Biophys. Acta.* **1077**:59-66, 1991.
22. Chung S.I., Park M.H., Folk J.E., and Lewis M.S. Eukaryotic initiation factor 5A: the molecular form of the hypusine-containing protein from human erythrocytes. *Biochim. Biophys. Acta*. **1076**:448-51, 1991.
23. Park M.H., Wolff E.C., Smit-McBride Z., Hershey J.W.B., and Folk J.E. Comparison of the activities of variant forms of eIF-4D: the requirement for hypusine or deoxyhypusine. *J. Biol. Chem.* **266**:7988-94, 1991.
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27. Hanauske-Abel, H.M., Park M.H., Hanauske A.-R., Popowicz A.M., Lalande M., Folk J.E. Inhibition of G1-S transition by inhibitors of deoxyhypusine hydroxylation. *Biochem. Biophys. Ac*t. **1221**:115-24, 1994.
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29. Park M.H., Wolff E.C., Lee Y.B., and Folk J.E. Antiproliferative effects of inhibitors of deoxyhypusine synthase: inhibition of growth of Chinese hamster ovary cells by guanyl diamines. *J. Biol. Chem.* **269**:27827-32, 1994.
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a single agent: Antiproliferative and fibrosuppressive effects on smooth muscle cells from human coronary arteries. *J. Clin. Invest.* **95**:446-55, 1995.

31. Wolff E.C., Lee Y.B., Chung S.I., Folk J.E., and Park M.H. Deoxyhypusine synthase from rat testis: Purification and characterization. *J. Biol. Chem.* **270**:8660-66, 1995.
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34. Joe Y.A., Wolff E.C., and Park M.H. Cloning and expression of human deoxyhypusine synthase cDNA: Structure-function studies with the recombinant enzyme and mutant proteins. *J. Biol. Chem*. **270**:22386-93, 1995.
35. Lee Y.B., Joe Y.A., and Park M.H. Inhibitors of hypusine biosynthesis: Potential anticancer agents. *J. Biome. Res.* **5**:46-52, 1995.
36. Wolff E.C., Folk J.E., and Park M.H. Enzyme-substrate intermediate at lysine-329 of human deoxyhypusine synthase. *J. Biol. Chem*. **272:**15865-71, 1997.
37. Joe Y.A., Wolff E.C., Lee Y.B., and Park M.H. Enzyme-substrate intermediate at a specific lysine residue is required for deoxyhypusine synthesis: The role of Lys^{329} in human deoxyhypusine synthase. *J. Biol. Chem*. **272**:32679-85, 1997.
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40. Wolff E.C. and Park M.H. Identification of $Lysine^{350}$ of yeast deoxyhypusine synthase as the site of enzyme intermediate formation. *Yeast*. **15**:43-50, 1999.
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46. Lee Y., Kim H.K., Kim Y.Y., Park M.H., and Joe Y.A. Effects of N^1-guanyl-1,7-diaminoheptane, an inhibitor of deoxyhypusine synthase, on endothelial cell growth, differentiation and apoptosis. *Mol. Cell. Biochem*. **237:**69-76, 2002.

47. Clement P.M.J., Hanauske-Abel H.M., Wolff E.C., Kleinman HK., and Park M.H. The antifungal drug ciclopirox inhibits deoxyhypusine and proline hydroxylation, endothelial cell growth and angiogenesis *in vitro*. *Int. J. Cancer*. **100**:491-98, 2002.
48. Kang K.R., Kim J.S., Chung S.I., Park M.H., Kim Y.W., Lim D., and Lee S.Y. Deoxyhypusine synthase is phosphorylated by protein kinase C *in vivo* as well as *in vitro. Exp. Mol Med*. **34**:489-95, 2002.
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50. Park J.-H., Wolff E.C., Folk J.E., and Park M.H. Reversal of the deoxyhypusine synthesis reaction: Generation of spermidine or homospermidine from deoxyhypusine by deoxyhypusine synthase. *J, Biol, Chem.* **278**:32683-91, 2003.
51. Clement P.M.J., Henderson A., Jenkins Z.A., Smit-McBride Z., Wolff E.C., Hershey J.W.B., Park M.H., and Johansson H.E. Identification and characterization of eukaryotic initiation factor 5A-2. *Eur. J. Biochem.* **270**:4254-63, 2003.

Manuscripts in Press

52. Cracchiolo B.M., Heller D.S., Clement P.M.J., Wolff E.C., Park M.H., and Hanauske-Abel H.M. Eukaryotic initiation factor 5A (eIF5A) as a diagnostic marker for abberant proliferation in intraepithelial neoplasia of the vulva. *Gynecologic Oncology, in press.*
53. Jeon G.A., Lee J.-S., Patel V., Gutkind J.S., Thorgeirsson S., Kim E.C., Chu I.-S., and Park M.H. Global gene expression profile of human head and neck squamous carcinoma cell lines. *Int. J. Cancer, in press.*
54. Umland T.C., Wolff E.C., Park M.H., and Davies D.R. A new crystal structure of deoxyhypusine synthase reveals the configuration of the active enzyme and of an enzyme:NAD:inhibitor ternary complex, *J. Biol. Chem. in press*

Chapters and Reviews

55. Park M.H., Cooper H.L., and Folk J.E. Chromatographic identification of hypusine [N^{ε}-(4-amino-2-hydroxybutyl)lysine] and deoxyhypusine [N^{ε}-(4-aminobutyl)lysine]. *Methods in Enzymology*. **94**:458-62, 1983.
56. Cooper H.L., Park M.H., and Folk J.E. Hypusine formation: A unique posttranslational modification of translation initiation factor eIF-4D. *Methods in Enzymology*. **106**:344-51, 1984.
57. Abbruzzese A., Park M.H., and Folk J.E. Hypusine biosynthesis: Studies on deoxyhypusine hydroxylase. *Italian J. Biochem*. **36**:45A-8A, 1987.
58. Park M.H., Abbruzzese A., and Folk J.E. Post-translational formation of hypusine: Biogenesis of translation initiation factor eIF-4D. In: Zappia V, Galletti P, Porta R, Wold F. eds: Advances in Post-translational Modifications of Protein and Aging. Plenum Press, pp. 633-40, 1988.

59. Park M.H., Wolff E.C., Abbruzzese A., and Folk J.E. Biosynthesis of hypusine in eIF-4D precursors. In: Zappia V, Pegg AE. eds. Progress in Polyamine Research. New York, NY: Plenum Press, pp. 435-47, 1988.
60. Abbruzzese A., Liguori V., Isernia T., and Park M.H. Inhibition of deoxyhypusine hydroxylase by polyamines. *Italian J. Biochem*. **37**:187A-9A, 1988.
61. Abbruzzese A., Liguori V., and Park M.H. Deoxyhypusine hydroxylase. In: Zappia V., Pegg A.E., eds. Progress in Polyamine Research. New York, NY: Plenum Press, pp. 459-66, 1988.
62. Park M.H., Wolff E.C., and Folk J.E. Review. Is hypusine essential for eukaryotic cell proliferation? *Trends in Biochemical Sciences.* **18**:475-9, 1993.
63. Park M.H., Wolff E.C., and Folk J.E. Review. Hypusine: Its post-translational formation in eukaryotic initiation factor 5A and its potential role in cellular regulation. *BioFactors.* **4**:95-104, 1993.
67. Lee Y.B. and Park M.H. Inhibitors of deoxyhypusine synthase: Structural features and biological study. Proc. 7th KSEA Northeast Regional Conf, pp 95-99, 1996.
68. Park M.H., Joe Y.A., Kang K.R., Lee Y.B, and Wolff E.C. The polyamine-derived amino acid hypusine: Its posttranslational formation in eIF-5A and its role in cell proliferation. *Amino Acids.* **10**:109-21, 1996.
69. Park M.H., Lee Y.B., and Joe Y.A. Hypusine is essential for eukaryotic cell proliferation. *Biol. Signals*. **6**:115-23, 1997.